SUC-SESSION

YOUR MAGAZIN FOR THE SINCLAIR SPECTRUM

- News
- Voice output for the ZX Spectrum
- Retro-Game consoles
- Spectrumania 2020
- Adventure solution »Dangermouse in The Black Forest«
- Interview with Richard Altwasser
- Story »*The splitting of the bit*« - Part 2
- And much more ...

ISSUE
225.
OF YOUR
MAGAZINE

FOR SUBSCRIBERS WITH SCENE+ DISK

THE NEWEST AND BEST PROGRAMS

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EDITORIAL

Dear SUC readers,

At the beginning of this year, who would have thought what would happen. In addition to the private storms that each of us has surely experienced, we are now facing the corona virus. I can imagine that you are not different than me and many others. The corona virus pandemic and Co-Vid-19 are as much on my mind as anybody else's and held me in the grip as well. Not that I am now ill with CoVid-19 - God forbid! I belong to the risk group because of my asthma, which I have had all my life, and my age, which I probably share with most of you. So far everything has passed me by - hopefully it will stay that way. Hopefully it will be the same with you. I really hope that there will be a vaccine fairly quickly, as well as drugs that will make the course less critical.

CoVid-19 or not, all this will not stop me from making this booklet.

To the disappointment of the makers of the SUC session, again only few articles and hardly any letters to the editor have been received. You must be aware that the SUC session lives only from your contributions. It is not acceptable that only the same people participate in the magazine over and over again. The consequence is that the magazine has only a few pages. Alternatively, it is possible that the booklet will be published only twice a year instead of three times - which neither I nor you would like. It is up to you.

Enough reminding words. In this issue you will find an interview with Richard Altwasser, one of the developers of the ZX Spectrum, which is certainly a treat. You can also find the news again, e.g. the MB03+ can be ordered and will be delivered. As expected, the ZX-VGA-Joy-Interface at Sintech is running quite well. The succsessful delivery of the ZX Spectrum NEXT should be in common knowledge?

By the way, the cover picture is a ULAplus graphic. The ZX-HD video interface is ULAplus capable. Looks good, doesn't it?!

That's it from my side as editor of the magazine. I think that the current crisis will pass us by like so many before.

Everyone please stay healthy!

Take Care,

Best regards, Joachim

April 30, 2020

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IMPRINT

The SUC-Session magazine appears in German and English and can be subscribed together with the disk-magazine ***SCENE+*** at the ***»Spectrum-User-Club«.*** For further information please contact Thomas Eberle.

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We thank all helpers for their contributions.

Copy deadline for SUC SESSION 226

Saturday, 15 August 2020

READERS LETTERS

Just like in the last issue, we received only very few letters from readers. If you have something to contribute to a topic but it is not enough for a whole article, then a letter to the editor is probably the right thing to do. Just send an e-mail to: thomas.eberle@sintech-shop.de

Ferdinand Lenhart from Schwabach makes the beginning this time:

Hello Thomas,

I would like to inform you that I have received the last issue in paper form and as PDF.

I would like to take this opportunity to inquire about the status of the TAP edition?

In any case, I would like to thank you for the work you put into it!

Thanks for the feedback, Ferdinand. The SUC session and Scene+ must be seen as two separate subscriptions. We offer both, but both have their own number range, are produced at different locations and are sent separately. For the SUC session we are at issue 225 with today's issue, Scene+ was last published in issue 74. For this year, issue 75 should be published as well as the issues of the SUC session 225-227.

An important hint came from Mathias Scheurer of Hofheim in Hesse:

Thank you very much, it worked - but it would perhaps be better in the sense of the DSGVO to send such e-mails not with a public distribution list but via BCC:.

Hello Mathias,

I was a little surprised to get your message. I entered the email addresses in Google, which then sends the info to the readers. I assumed that everyone would receive a single e-mail. In fact, after some research I found out that Google actually sends one e-mail with many recipients and that this is a problem that annoys many people but doesn't bother Google. So, we have now switched to a special software to send the mail. I would like to apologize to all our readers, we were far from sharing the email addresses of our readers with others. But at least it remained between us Spectrum users.

Norbert Opitz from Wittenberg has contacted us:

Hello Thomas !

The picture in the SUC-SESSION 224 on page 5 by Ingo Truppel and me was taken at the VCFB 2016. My participation as exhibitor at non-Sinclair events is:

- *since 2013 to VCFB together with Ingo*
- *since 2013 at the »Long Night of Computer Games« in Leipzig alternating with Ingo and/or Scott-Falk Hühn*
- *since 2015 to »Gamescom« in Cologne Hall 10/2 »Retrogaming« since 2015*
- *2015 hourly with Dieter Hucke*
- *2016 with Detlef Obermann from Dormagen with QL's*
- *2017 alone*
- *2018/19 with Stefan Höhl with Ataris from Friedland near Göttingen from »ABBUC«*

My participation at the "Gamescom" goes back to a request of René Meyer from Leipzig, because the Sinclair computers were only shown in showcases there until then.

At all these exhibitions, there were never other Sinclair computers to be seen, but visitors and also exhibitors have or know our devices and remember them like a time travel into their youth.

To Mandelbrot-Set: I would have to have a Basic program on MB 02, which uses the acceleration program "TOBOS_FP" (FP = Floating Point, also usable for other Basic programs) from a Polish guy, that draws the Mandelbrot-Set in about 45 minutes and, when parameters are set accordingly, also zoomed parts of it.

If you are interested I could send you a MB 02 disk.

Bye, Norbert

Hello, Norbert,

Of course we have expressed interest and your disk is already here. Mirko will process it in the next *Scene+*. We are happy that someone else is still holding up the Sinclair flag at shows. It would be nice if we could put together a calendar of events with all events where Sinclair computers are or at least could be present. Spontaneously I can think of the »VCFE« in Munich or the "Classic Computing" (changing venue). Sometime there will be events again. Let me know when you have dates.

Claudius Rebhan from Peiting in Bavaria is always dealing with graphics on the Spectrum.

Hello!

Are only in the 128k game more backgrounds, effects, objects possible? Wanted to know again in short sentences, what the 2nd screen memory is for. Do you need a Multiface if you use Pokes, or is it possible with Divide or SD card?

Greeting, Claudius Rebhan

Hello, Claudius,

when the Spectrum was launched in 1982, many people could not yet imagine what the Spectrum was already bringing to the screen in demos just eight years later. Then it took another five years and we had Multicolour and another 15 years later all at once even Multicolour games. Everything on 48k. Who knows what else will be possible. The Spectrum has a memory range from address 16384 to 23296, and everything in that range is output to the screen, including attribute colors. In the case of the 128k spectrum, one can save the image from address 49152 on into a second area. With a single command *(which one? [JG])* you can switch from one area to the other immediately. This way you can switch from one image to the other faster than with the ZXS 48k. You don't have to rebuild an image, you simply switch the area that is displayed on the screen. If you make good use of this effect, you can invent new kinds of effects. However, it hasn't been used very often so far. As I said, who knows what's coming. The Spectrum surprises again and again.

The SUC session is international with a German and an English edition. Unfortunately, only a few readers of the English edition are taking the floor. Here is a question from Neuleser Hendrik Bezuidenhout from South Africa:

Good morning, Thomas,

I have subscribed and paid for 3 PDF issues and disk by e-mail. Did you get the money and is there a sample how it will look like?

Hello, Hendrik,

We have received your payment. Your subscription started with issue 224 and goes until 226 of the SUC session. You will also receive issue 75 of Scene+. There is still the possibility to buy Back-Issues, we always have to print a few more of the magazines. I can send you the PDF or download issues after one year for free. We have some issues online on the website www.speccy-scene.de. We plan to put all magazines online when they are one year old. This way we protect the users who want to stay up to date and pay, but we also offer all others information possibilities. Unfortunately, attempts have failed so far. We have already uploaded all issues to the World of Spectrum archive, but nobody there has been able to process our upload. So in the end we will have to do it ourselves. As you can guess from the issue number, we have scanned 225 issues, all of them. We lack the memory space and the ability to bring the whole thing graphically for download to a website. If you want to dare to take part in the project, please contact us.

And another reader of our English edition. Ales Jurica, also known as "Ellvis", lives in Berlin, but as a Slovak he prefers the English edition. He ordered some older magazines and disks to start with, but is also a subscriber to the current issue.

I got the magazines today. I also tested the floppy disk (Opus) and it works fine. I am really impressed by the quality. Keep up the good work, I will probably order more back-issues as soon as

the situation with COVID-19 calms down a bit. Thanks.

Hello Ellvis,

I'm glad you like our magazine. Especially when COVID-19 has our planet under control, we have enough time to read all the issues. Therefore the offer to all of you, if you are missing an issue, ask for it. We still have almost all the issues we ever created left. Even floppy disks can usually be made. Just contact us.

A letter is still coming from Lothar Ebelshäuser. He has made friends with the ZX-VGA-Joy. The two get along very well. What I can absolutely understand - is the same with my ZX-VGA-Joy! (JG)

Hello, Joachim,

recently Dieter Hucke was my guest. Unfortunately only briefly, but nevertheless. What pleased me very much, he brought me a VGA interface. My wife took this as an opportunity to have a Christmas present for me now.

Of course I immediately connected the interface between Specci and flat screen TV. And I am really thrilled. It worked perfectly right away.

The picture is great. And now I can play my favorite game "Squares" with joystick again.

In short. I am very satisfied.

Enclosed I send you two photos. One is a part of my Sinclair corner. The other one shows an advent calendar, which probably only exists in the Eifel.

Best regards,

Lothar Ebelshäuser

Lothar grants and here an insight into his »Playground«. There's something familiar... It's the same with me :)

Letters to the editor as usual:

thomas.eberle@sintech-shop.de

NEWS IN SHORT...

The NEXT is here

After the release of the „boards only“, the project was hit by some delays, but now the Basic and Plus versions of the NEXT have been delivered. The version with built-in Raspberry, the "Accelerated" is still outstanding. When you read this, however, these devices should finally have reached their owners. The Spectrum community might have a few more users, in any case some more very happy users. The Spectrum-Next fan group in Facebook has over 8000 members by now. We expect a lot coming up in future, first software titles are already released and sold out as well. It would be nice if a NEXT user would be willing to present the new commercial software titles.

MB03+ available for order

The MB03+ is now finally available and can even be ordered directly. This interface is the successor of the legendary MB02+, which is the ultimate solution for Spectrum users. The MB02+ was once

released in 1995, uses HD disks with 1.86 MB, is very fast and uses the clever BS-DOS, which also allows it to use the cassette syntax. So, programs that load from cassette can simply be copied to floppy disk and work the same way there without having to be adapted. This applies to basic as well as machine code programs (except for very special loading routines). The MB02+ was early extended by an IDE interface, so that it could access hard disks, later CF cards or SD cards as storage media. The last versions of the MB02+ as produced by Ingo Truppel had these IDE interfaces already built in.

The MB03+ now continues this development. The mainboard is much smaller at 10x10 cm and contains all features of the MB02+ like 16 MB SRAM, real time clock, joystick (Kempston port), NMI button and IDE connector. Furthermore 4 MB Fast SRAM, 2 MB Flash, USB ports for K-Mouse, and various sound chips like three times AY-Turbo Sound, SAA1099, SounDrive/Stereo Covox and General Sound. BS-Dos still works, but it is now also ESXDOS and Unodos compatible. Optionally even a Wifi module can be connected. But the connection for floppy drives and the printer port had to be changed. Modularly this is to be made available however still later.

Orders are possible via contact form, the page with information and the contact form is available on

https://sites.google.com/view/mb03plus/home

Spectrum Next crashes servers

An unremarkable report brought the Server of the Spectrum NEXT shop crashes. It was published in Facebook that apparently 500 additional devices had been produced and went on sale. Seconds later there were thousands of hits on the shop, which the shop could not cope with. Only one user could get hold of a Next. The action was recalled immediately, the other 499 NEXT will now be sold via a different channel, possibly via Ebay.

If you want to visit the shop - there is almost nothing left, everything is sold out:

https://www.specnext.com/shop/

»FOREVER« moved

The well-known demo party "FOREVER", which took place every year near Trencin, has now been postponed for the first time since it started 20 years ago. The event used to take place on the second weekend of March and is now postponed to autumn, when the Corona crisis will hopefully be over.

Current info:

http://forever.zeroteam.sk/

No crown defended

It was announced over three years ago and I was annoyed not to have ordered.

"Defender of the Crown" for the Spectrum is not new, there was already a version from Poland in the 80s, which was recognized as the official version (we reported). I first regretted not to have ordered the game, because it should have come in a nice box with card and cassette. This, in retrospective, actually turned out a good decision, because there will finally be nothing. The shop of Cinemaware Retro still exists, but it doesn't work and apparently nobody cares about it.

Sorry to hear that.

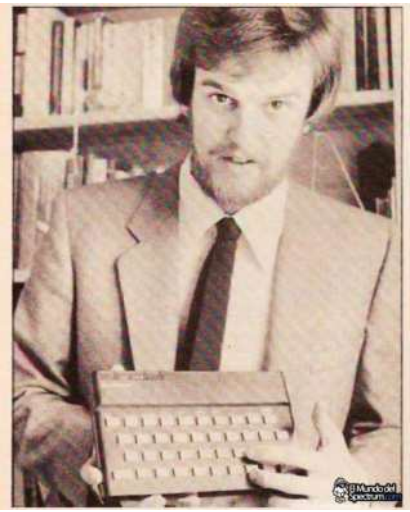
AN INTERVIEW WITH ZX SPECTRUM DESIGNER RICHARD ALTWASSER

FROM .AU RETRO-MAGAZIN PALEOTRONIC

Richard Altwasser is a British engineer responsible for the hardware design of the ZX Spectrum. After graduating from Trinity College, Cambridge with an engineering degree in 1978, he was hired by Sinclair Research in 1980. First tasked with writing programs for the ZX80, he worked on the circuit board used in the ZX81, and was later promoted to the team working on the ZX Spectrum, where his main contribution was the development of the Spectrum's colour graphics architecture.

After the Spectrum's launch, Richard left Spectrum to start his own computer company, with Sinclair co-worker Steve Vickers. Originally called Rainbow Computing, it was later named Jupiter Cantab, which launched only one major product, a home computer called the Jupiter Ace. However the Ace was not successful, and the company went bankrupt in 1983. Richard subsequently went to work for Amstrad, overseeing its acquisition of Sinclair's computing line, until 1991.

Thanks for taking the time to answer some questions for Paleotronic about the ZX Spectrum and in particular the development of the machine's display and video. Does it surprise you that people are still so keenly interested in even the smallest details of the Spectrum after so many years?



Richard Altwasser1982

The ZX Spectrum was a great success, especially when seen in the context of the competition at the time and the pioneering nature of the market. This success is more notable when it is remembered that the BBC, with its reach into every UK home, funded by the licence holder, decided to back an inferior product that sold less than a third the quantity of the ZX Spectrum.

I have admired from a distance, but never really understood the continuing dedicated fascination of enthusiasts. The important legacy of the ZX Spectrum has been a generation of young people who gained a first experience of programming which propelled them into a career in software and computing. Only in recent years have educationalists, at least in the UK, started again to understand the importance of teaching coding.

Could you tell us a little about how you came to be working at Sinclair Research and what led up to your appointment as the lead designer on the Spectrum's display system?

I was delighted, less than two years after graduating from a broad Cambridge Engineering Tripos and having subsequently studied for a Masters in Electronics, to be offered a job back in Cambridge, with an office that overlooked the iconic Kings College Chapel. I already owned a Tandy TRS80, and had taught an evening class in Basic and Computing. I met Clive (not yet knighted) in his offices, he showed me a ZX80, I wrote a few brief programmes during the interview, and could see the potential. I'd not previously heard of the man, his company or products, but saw an opportunity to gain experience. I served an "apprenticeship", assisting Jim Westwood with his ZX81, before he was moved to Clive's favourite Flat Screen TV project, a technology area about which I knew little. I then naturally inherited the task of following the ZX81.

Did the public's perception of Sir Clive (Sinclair) and Sinclair Research's reputation for delivering creative solutions and innovative products influence the ZX Spectrum's creation?

Clive was fond of telling the press that he, "makes money to be able to invent, rather than invents to make money." Whether the legend of this slightly eccentric self-taught inventor, which he consciously encouraged, helped the commercial success of the products, or the product's success drove the personal myth, is debatable. The two were complementary and inseparable. The public wanted more and naming the ZX Spectrum's two predecessors after the years of their launch, had created an expectation for an introduction at PC World in 1982.

The public expected a colour graphic display, an extended BASIC and an aggressive price. But Clive's involvement in defining functionality went little beyond this. His disinterest in computing has continued to be documented more recently. However, whilst Clive gave Steve Vickers and I great freedom to define the ZX Spectrum features and functionality, he did specify that we should use a Ferranti gate array with Current Mode Logic (a little used transistor gate configuration, related to ECL). He also took a detailed interest in component cost, industrial case design, and he commissioned an artist for the cover for the instruction manual. Steve and I wrote the contents, for which we gained a national award for the "Most incomprehensible" user manual of 1982, a prize for which Clive understandably made no claim.

Home computers such as the Spectrum astounded people with video output being primary driver in that amazement. The exclamation of 'Wow I can put something on the screen seemed a near universal magical moment for people. How conscious were you at the time of the effects your efforts were having on people?

The launch at the PC World show was a revelation for me. Sinclair Research offered prompt delivery for the first one thousand cash orders, and people surrounded the stand four deep on all sides for the first morning. When Steve and I managed a short break, climbing the wide stairway out from the exhibition hall, we followed a couple of schoolboys, unaware of our presence, who enthusiastically recounted every detail of the ZX Spectrum specification. The age at which children start programming continues to become younger, but we were surprised at the detailed understanding of these youths and rewarded by their approval.

I've since appreciated that learning anything new is at first a struggle, which reaches a tipping point when gratification repays the effort invested. One key to the traction gained by the ZX Spectrum in the market and on the subsequent careers and hobbies of those first users, was the speed with which someone could reach that tipping point, enter a first programme and produce results on a screen. "Hello World!" quickly became "Welcome to a career in computing."

In the earlier Sinclair computers the ZX80 and ZX81, the Z80 CPU was almost entirely responsible for video generation and the video signal. Were these methods discounted early on in favour of farming out this functionality to TTL logic and eventually into the ULA?

Increasing the RAM memory from 1k Bytes, in the monochrome ZX81, to 16k Bytes was the minimum step needed to enable colour and graphics. To contain cost, required moving from static to dynamic RAM and reading much more video memory. Dynamic RAM also needed refreshing. It quickly became apparent that video access and memory refresh could not be handled by the CPU, but would require dedicated logic, which we implemented in a ULA. Combining memory refresh and video access allowed an important simplification to this circuitry.

When working on the Spectrum's video system, did you consider the computers gaming potential? And was the usage of custom video and sprite generation ICs considered, as was being employed by American manufactures such as Commodore and Atari in their microcomputers?

We certainly understood that people would use the ZX Spectrum not just for learning to code, and the fact that gaming turned out to be a major application suggests that our specification allowed

adequately for this. The need to meet a cost target and consequent consumer price point meant that we never gave serious thought to hardware dedicated to sprites or other complex video features.

Amazingly the Spectrum's display file / graphics mode uses less than 7 kilobytes in RAM. Were you working towards very specific memory constraints, or was the target to use as little RAM as possible?

From memory, I believe that 16kB was the smallest DRAM configuration commercially available. The use of one byte per character pixel block for colour and attributes, and eight bytes for pixel data was suggested by three observations. Firstly, the colour resolution of the human eye is less than for luminance. Secondly, the PAL colour TV standard, recognising this difference, has a much lower chrominance than luminance bandwidth. Thirdly, the established and popular Ceefax and Oracle implementations of Teletext allowed for character level colour, with foreground, background and flashing. A desire to use the smallest possible memory, and the precedent of Teletext character level colour led directly to the adopted scheme.

The slightly latter Timex TS2068 variant of the Spectrum had several additional graphics modes, including a hires mode of 512 × 192 pixels. Were additional modes ever considered for the original ZX Spectrum?

We agreed the specification quickly, the main debates centred around prioritising new software features. I don't recall seriously considering any additional complexity to the video scheme.

To achieve a mere 7 kilobyte memory usage your end solution stores 256 x 192 pixel data into a single bit pixel array in combination with a separate 32 x 24 colour attribute array.

Most micro computers arranged their palette in RGB order, the Spectrum's palette is somewhat different as the colours are organised by increasing luminance. Can you comment on why this choice was made?

This probably arose from my focus on the luminance and chrominance ULA outputs, Y, U & V for which I designed a simple three channel DAC, implemented in the ULA and covered by patents GB19820011723, EP0107687 and WO8303916.

In the original 16k and 48k Spectrum, there are two crystals effecting video generation, a 14 MHz and 4.43 MHz crystal. Employing two crystal induces a continual timing variance in the relationship between pixel and the colour sub-carriers producing a noticeable interference in the video output signal known as dot crawl. What brought about the need for using two crystals, and was the dot crawl known about before the Spectrum's release?

The dot crawl was known about before initial release and considered an artefact that would not limit sales, a judgement that I suggest proved correct. I have little confidence that the original ULA, a design choice passed to me by Clive, and aimed at a price point, had sufficient capacity or speed for the long synchronous counter that would have been needed to fully meet PAL specs. And as no ULA dynamic simulation tools were available, this could not have been tested during design. Dot crawl was later eliminated with the 128k version ULA in which the colour subcarrier was tied to the dot, line, frame and CPU frequencies by dividing from a single faster clock. Although this was after my time with Sinclair Research, it has been documented that this later 128k ULA took a short cut and generated a slightly out of spec. line frequency, a decision that we would not have had time to test in the rush to launch in 1982.

Another more noticeable artefact-ing issue in the Spectrum's video output has become known as the 'snow' effect, where the display substitutes white pixels for real values. This effect appears when the ULA is attempting to read a contended memory address where a Z80 CPU access is already in progress. What was know about this possible bug at the time of design and what could have been done to avoid it?

I don't recall this being a point of discussion at all during testing and launch, perhaps because by synchronising contended video memory transfers to the frame refresh period, available to software via a CPU interrupt, this effect could easily be avoided. As a purely hardware designer at the time, I might well have attributed this artefact to lazy software development rather than a "possible bug".

Lastly, the final design of the Spectrum's video resulted in the now famous attribute / colour clash, inadvertently leading to a whole graphics style associated with British Computing and Gaming in the 80s, not a bad legacy. How do reflect of that now?

I believe the design reasons for the feature you refer to are fully accounted for in answer to your questions above. Given the same circumstances I would be happy to take the same design decisions again, a position reinforced by the knowledge that the ZX Spectrum was several times more successful than its predecessor or BBC competitor, and widely used for graphical games.

Latest Picture of Richard Altwasser

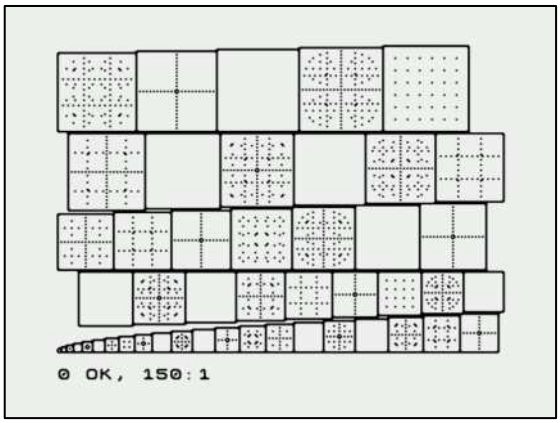
Link to the original article

https://paleotronic.com/2018/10/01/an-interview-with-zx-spectrum-designer-richard-altwasser/

BASIC-GIMMICK 1

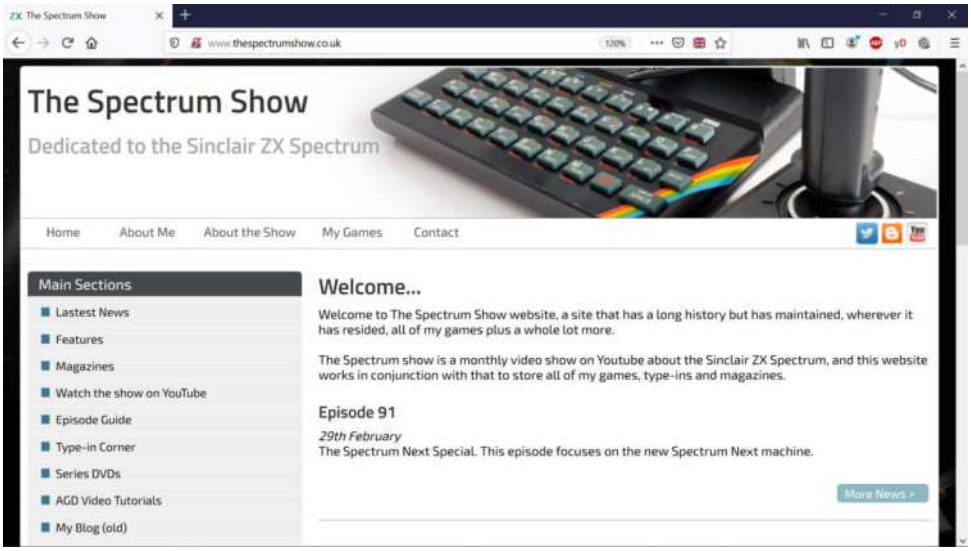
From Uwe Gieken on Facebook,
Group *BASIC on the ZX Spectrum*

```
 10 DEF FN m(a,b)=a-INT (a/b)*b
 20 LET i=0: LET j=0: LET r=1
 30 FOR d=2 TO 49
 40 PRINT #1;AT 1,0;d,
 50 FOR y=0 TO d
 60 FOR x=0 TO d
 70 IF FN m(x*y,d)=0 THEN PLOT i+x,j+y
 80 NEXT x: NEXT y
 90 IF r<0 THEN GO TO 130
100 LET i=i+d
110 IF i+d+1>255 THEN LET i=255-d-1:
    LET j=j+d+1: LET r=-r
120 GO TO 150
140 IF i-d-2<0 THEN LET i=0: LET j=j+d+1:
    LET r=-r: GO TO 150
145 LET i=i-d-1: LET j=j-1
150 NEXT d
```



THE SPECTRUM SHOW

BY THOMAS EBERLE



No, the SUC session is not the only Spectrum magazine. Already since 2013 Paul Jenkinson is not only producing the YouTube movie channel "The Spectrum Show," but also the magazine of the same name. The whole thing is rounded off by a blog. I've had my eye on everything for quite some time, today I'd like to introduce it to you.

The website http://www.thespectrumshow.co.uk/ introduces the editor Paul Jenkinson and his projects. On the one hand, there are the games that we always liked so much that they were published at SCENE+. All games can also be downloaded there, mostly spectrum games, but also some conversions for Amiga or PC. The blog was not updated since 2016, but I assume that everything worth mentioning will be implemented in the magazine and video.

Next I will watch some videos of "The Spectrum Show". I wouldn't call this a video magazine directly, because every issue is dedicated to a certain topic. Of course it is always about the Spectrum, but you shouldn't imagine it like a News-report. Nevertheless, there are definitely current topics. Issue 91 from March 2020, for exaexample, reports on the release of Spectrum Next and presents it in detail. Other episodes go over a certain year or e.g. software curiosities. Each issue is very interesting and really professionally done. You might think you are on a real documentation channel, but the whole thing is just a private hobby. The episodes appear about every 4-6 weeks, so there are already quite several issues.

The Spectrum Show magazine is also available for free download on the same website. The PDF can theoretically be printed, but it is neither suitable nor intended for that. It is optimized for screen display. The magazine has a very professional design. It contains regular reports about both the past and the present. So a review of a previous year is always included, as well as a software test of current software. There is no claim to completeness. Several programs are presented, both older classics and new releases. The rest of the magazine is not exactly predictable, but there are always interesting topics like hardware or a certain game genre. What is admirable is that Paul Jenkinson does all this mostly on his own. He is either a genius or has a hell of a lot of time (or both).

From a stylish point of view, the magazine reads very well, it's not a copy of another magazine, it has its own style and charm. Since it costs nothing, I can recommend it twice. Visit the website, watch the videos and download the magazines. And while you're visiting it, download the games as well. Most of the games are also available as real cassettes with instructions at www.cronosoft.co.uk.

CHEETAH SWEET TALKER

VOICE OUTPUT ON THE ZX SPECTRUM

BY JOACHIM GEUPEL

The *»Cheetah Sweet Talker«* was a voice output module for the ZX Spectrum. It was launched in 1983 by *»Cheetah Marketing Ltd«* at originally £34.95. Because of the exchange rate from DM to GBP, his was rather steep, the exchange rate for UK pounds used to be between 3.56 DM to 4.08 DM. Nevertheless, there were Spectrum enthusiasts in Germany that made the plunge and acquired such an interface.

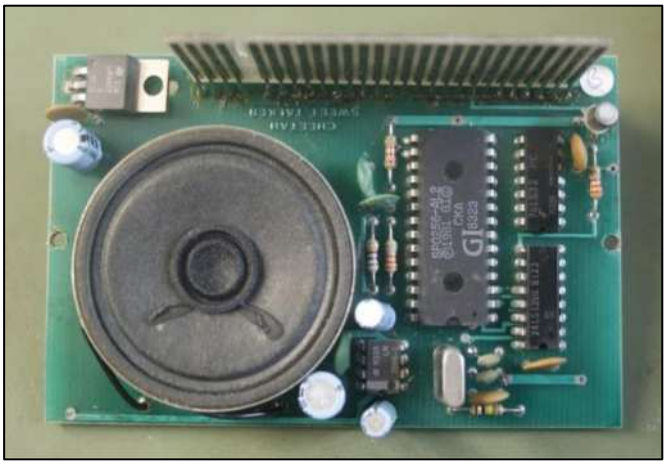
The product's slogan was *»Make your Spectrum talk!«* In fact, the ZX Spectrum can make more or less understandable sound when programmed properly. So, the Sweet Talker actually gave the ZX Spectrum a voice, just like in the 80s when robots still sounded like robots. From today's perspective, the voice output actually sounds like a 1980 voice of a robot. Robots had a mechanical voice, so they used to sound like that. The Spectrum with the attached Sweet Talker actually replicates exactly that.

The speech synthesis is based on an *SP0256* chip by *General Instruments*. The IC is supported by an amplifier and loudspeaker, so the Spectrum can speak quite loudly. In fact, the volume is about 82dBa at a distance of 10cm, which is the equivalent of the noise from a busy road. The *Sweet Talker* is therefore difficult to ignore. The module is plugged onto the edge connector and has a looped-through bus, so that it is possible to plug in further modules. Using a list of individual syllables and sounds, the allophones, which are output as DATA statements, words and sentences are generated that are more or less understandable. The package contains a demo program that welcomes the user and gives short instructions.

Maybe a short explanation is due - what are allophones?

If you search on Wikipedia, you get an explanation that is not really understandable for laymen. There it says *»Allophone (from ancient Greek ἄλλος állos, 'different' and φωνή phōnḗ, 'voice', i.e. 'other sound') is a linguistic term for a phonetic variant of a phoneme. Allophones are also called phoneme variants or subphoneme variants.«*

All right?! Well, this explanation didn't tell me anything at first, so I tried to find another explanation. To understand what an allophone is, you need to know what a phoneme is. Put simply, phonemes are the totality of all sounds that make up the meaning of individual words in a language. As an example, the "r" in a word can be pronounced both rolling and non-rolling. The meaning is generally the same. Allophones in this case are the variants in pronunciation; both the rolled "r" and the non-rolled "r" sound different but have the same meaning, as our Bavarian friends can confirm.



The Cheetah Sweet Talker from the inside

The speech synthesis chip *SP0256-AL2* was manufactured by *General Instrument* in the 1980s. *General Instrument* (GI) is better known for their sound chips, which we all know. The sound chips *AY-3-8500, AY-3-8603* and the *AY-3-8912A* were developed by GI. The internal ROM of the *SP0256-AL2* contains 59 different sounds, the allophones, which can be addressed and retrieved via a simple addressing. In order to be able to understand anything at all, the sound signal is smoothed over a low pass filter before it goes to the amplifier. The amplification to audible speech is provided by the LM386N audio amplifier IC with a power of 1.25W.

Programming

The Sweet Talker is relatively easy to program. Two commands are needed to emit a sound from the interface. One to find the corresponding sound and one to make the Sweet Talker shut up again. If the cancel command is not given, the interface will continue to sound until the computer is turned off.

The Sweet Talker has a total of 63 sound commands available. Most words can be formed with these commands. However, since the origin of the sounds built into the ROM is the English-speaking world, it is somewhat difficult to construct German words and sentences. The allophone table included with the Sweet Talker package shows the individual syllables. These are put together to form words and sentences, whereby the pauses between the words must not be ignored, otherwise the interface will chatter without a recognizable pause.

A short example:

```
10 DATA 50, 19, 13, 15, 15, 0
20 FOR I = 1 TO 6
30 READ A
40 OUT 7, A
50 NEXT I
```

This program outputs the word *»Cheetah«* and should be understandable for everyone. The data in the first line of the program is interesting: Here the individual allophones are assigned that form the word *»Cheetah«*. In detail, they mean »50 'CH' as 'church', 19 'IY' as 'treat', 13 'TT' as 'street', 15 'AX' as 'instruct'«, and finally the command to switch off or pause that shuts up the output.

Compatibility

Right out in front: The "Cheetah Sweet Talker" has problems with compatibility, or rather - the new interfaces have problems with Sweet Talker.

The interface worked fine with the Spectrum 48, the Spectrum 128 Toastrack and the Harlequin 48. But you should be careful with the other devices. On the Harlequin 128, the interface does not seem to work at all.

In the last issue I introduced the VGA-Joy in detail. Also, the DivMMC EnJOY! is in use by many of us. Since I, like most of us, have saved many programs as TAP on SD card, I wanted to load them from SD card again. So I plugged everything over my backplane into the Edge Connector: the EnJOY! into the first slot, the Sweet Talker into the second slot and the VGA-Joy into the Sweet Talker .

That should have worked - but it did not. What struck me right away was the image displayed by the VGA monitor. It showed the streaks that occur when memory chips in the screen memory are defective. I then tried all possible combinations to get an error-free function. The EnJOY! In the last slot does not work, it is not recognized. The VGA-Joy in the last slot leads to streaks on the monitor and will probably damage the RAM in the Spectrum in the long run. The Sweet Talker in the last slot does not work because the other interfaces have no bus. Should I ever have a backplane with three slots, I'd like to test if it works in the order VGA-Joy, EnJOY! - and finally Sweet Talker.

The three interfaces together are mutually exclusive as far as I can see. What works, however, is to first plug the EnJOY! and then the Sweet Talker onto the backplane. The image output via the attached video output was possible without any problems, with the known limitations.

Summary

To conclude this article, I can say that the "Cheetah Sweet Talker" is fun. Adding voice output to a self-written game would be a fun gimmick, but I don't really need the interface. The fact that the

Sweet Talker is mostly incompatible with modern interfaces is a pity. But moving the addressing to another place would mean a complex rebuild of the interface. So, the only thing left to do is to make without the VGA-Joy and connect an FBAS monitor or the TV again, if you want to experiment with it.

Information about the speech output IC SP-0256-AL2 can be found under the links

https://de.qwe.wiki/wiki/General_Instrument_SP0256

and *http://spatula-city.org/~im14u2c/intv/tech/sp0256_instr_set.html*

to find.

»DANGERMOUSE IN BLACK FOREST CHATEAU« ADVENTURE SOLUTION

BY HARALD LACK

1984 Brian Belson, Edgar Belka and Kevin Buckner
creative sparks

Hello dear adventure friends,

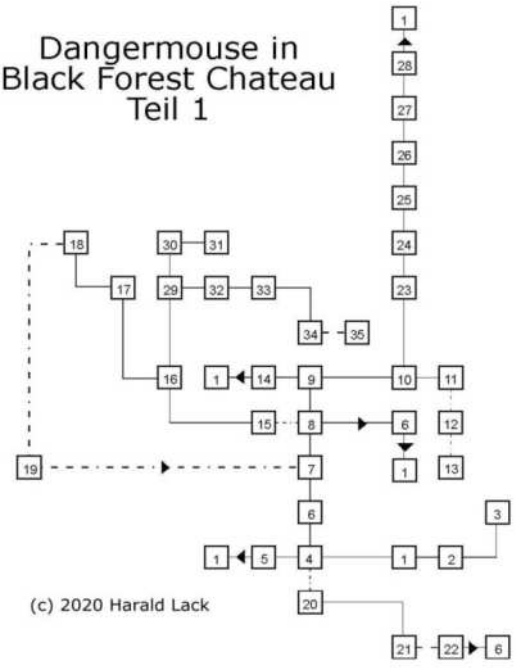
today I have picked out a two-part program again, the name is "Dangermouse in Black Forest Chateau" from Creative Sparks. The authors of this James Bond persiflage put the player into the agent milieu and we get to save the world once again. So far nothing new.

Especially in the first part of this program there are quite unclear directions like *enter tunnel... go clearing...* etc., which does not make it impossible to create a plan, but in terms of clarity and order its quite difficult! That's why I decided to offer a plan for this adventure solution anyway, which sometimes may seem a bit abstruse and has some identical location names, but this comes from the large forest area, which has absolutely identical location descriptions everywhere. Of course, this makes things even more confusing and really difficult. But I hope that you will get along with my work anyway. We don't even want to talk about the labyrinth complex of the second part yet. But as long as you stick to the solution printed and verified here, nothing should harm you even with this not quite optimal plan. But as the saying goes - hope dies last! If I haven't made any mistakes by transferring the handwritten notes, it could ensure a good Start!

What is this adventure game actually about? The background story is really very simple and quickly told.

The player embodies the legendary super agent Dangermouse (a kind of Hyper-James-Bond), who carries out orders for a "Chief" Colonel K., together with Penfold, a bit woozy assistant.

The organization for which Colonel K. works is so secret that not even he himself knows who he works for and what exactly he does. Anyway, the fact is that the most important politicians in the world are influenced by a mysterious thing that turns out to be a pi-beam. This influence threatens to plunge the world into chaos (even more than it already seems) and so it's once again five minutes



to twelve when our super agent enters the stage.

The Secret Service-department has found out that this mysterious Pi-Beam apparently originates from an old chateau in the mysterious Black Forest. After receiving orders and the mission to save the world again, Dangermouse and Penfold leave town in an aerocar and head for the Black Forest. Soon they find a clearing where they can land safely with the vehicle. And this is where our adventure begins, with us in the leading role.

So let's get right to the step-by-step solution of the first part of this adventure. But before that again - in the usual way - a small view of the printed plan and its locations/objects:

1) In a clearing in the forest / woodmouse hut, large tree
2) Next to a large tree standing on its own
3) Perched high up in a tree / hole in the trunk containing a skeleton key
4) Outside a log cabin / empty bottle, shovel, axe, hacksaw
5) Deep in the forest near a clearing / rope
6) At the chateau entrance with a deep murky moat surrounding the chateau
7) On the bank of a murky moat
8) On the bank of a murky moat at the edge of the forest / boat
9) In a misty forest glade by the bank of a wide stream
10) On a path by a stream
11) At the entrance of an old abandoned mine / old lantern, pick-axe, empty sack
12) In a steeply sloping ill-lit mine shaft near many narrow corridors leading deeper into the mine / pit
13) At the bottom of what appears to be a well / gold coin, old bucket
14) In a small clearing beside a woodpile / some logs
15) Aboard a boat in the murky moat
16) In a kitchen / some bottles of milk, red herring, pepper pot
17) Running up a circular stone stairway half way up to the top of one of the chateau towers
18) In a small room at the top of the stairs / feather
19) In the moat with a great white shark
20) In the woodmouse´s hut / garlic, trapdoor
21) In the cellar of the hut / gorilla
22) In a smuggler´s cave / powder key, compass
23) Halfway across a wide stream / ring
24) Lost in dense forest A
25) Lost in dense forest B
26) Lost in dense forest C
27) Lost in dense forest D
28) Came across a hermit crab wandering in the forest / flask of moonshine
29) In a passage leading from the kitchen / switch on the wall
30) In a large glass covered conservatory full of plants
31) On a snow covered lawn which slopes away to the moat
32) Down a passage with three bats changing into mechanical vampires
33) In the entrance hall of the chateau
34) In a dark stone vault / skeleton chained to the wall
35) Captured in an iron cage over a burning brazier

And so it goes on in our agent's life...
EXAMINE THE TREE, CLIMB THE TREE, TAKE THE SKELETON KEY, GO TO THE CLEARING, GO TO THE HUT, TAKE THE SHOVEL, HIDE IN THE FOREST, CLEAR SOME SNOW, PICK UP THE ROPE, GO TO THE CLEARING, GO TO THE HUT, TAKE THE AXE, FOLLOW THE TRACK, FOLLOW THE MURKY MOAT, FOLLOW THE MURKY MOAT, ENTER THE FOREST, GO DOWN STREAM, FOLLOW THE TWISTY PATH, TAKE THE LANTERN, ENTER THE MINE, EXPLORE THE MINE, TAKE THE OLD BUCKET, RETRACE YOUR STEPS, LEAVE THE MINE, KEEP THE LAMP, GO TO THE STREAM, FOLLOW THE STREAM, ENTER THE FOREST, CHOP SOME WOOD, TAKE SOME LOGS, FOLLOW THE TRACKS, GO TO THE HUT, TAKE THE BOTTLE, FOLLOW THE TRACKS, FOLLOW THE MURKY MOAT, FOLLOW THE MURKY MOAT, LAUNCH THE BOAT, ENTER BOAT, CLIMB UP USING ROPE, TAKE THE HERRING, GO UP THE STONE STEPS, CONTINUE TO THE TOP, TAKE THE FEATHER, LEAP FROM THE WINDOW, FOLLOW THE MURKY MOAT, FOLLOW THE MURKY MOAT, GO TO THE CLEARING, GO TO THE HUT, KEEP THE BOTTLE, ENTER THE HUT,
EXPLORE THE HUT, GO DOWN THE CELLAR, GIVE THE GORILLA THE FEATHER, TAKE THE COMPASS, GO TOWARD THE LIGHT, FOLLOW THE MURKY MOAT, FOLLOW THE MURKY MOAT, ENTER THE FOREST, GO DOWN STREAM, CROSS THE STEPPING STONES, FILL YOUR BOTTLE WITH WATER, CONTINUE ACROSS THE STREAM, PRESS ON, PRESS ON, PRESS ON, PRESS ON, GIVE HIM THE RING, GO TO THE CLEARING, FOLLOW THE TRACKS, FOLLOW THE MURKY MOAT, FOLLOW THE MURKY MOAT, ENTER BOAT, CLIMB UP USING ROPE, KEEP THE HERRING, GIVE HIM THE FLASK, ENTER THE DARK PASSAGE, GO THROUGH THE EXIT, ENTER THE CHATEAU, PRESS THE SWITCH, GO

THROUGH THE EXIT, ENTER THE GARDEN, OFFER THE RED HERRING, FILL THE BUCKET, ENTER THE CONSERVATORY, ENTER THE CHATEAU, GO ALONG THE PASSAGE, THROW THE MURKY WATER, ENTER THE HALL, GO DOWN THE DARK STAIRS, UNCHAIN THE SKELETON.
We receive the code for the second part:
Code part 2: 7842981

So much for the first part of our spy life. Look forward to the second part, there we will try to escape from an unfortunate situation and save the world. Until then, have fun fiddling around and replaying the game.
See you soon here on this pages!

»DIZZY 3 - FANTASY WORLD«

GRAPHIC ADVENTURE SOLUTION

BY HARALD LACK

1989 Oliver Twins, Neil Adamson / Codemasters

Hello DizzyFriends!

After I have dealt with the first games of the Dizzy series a long time ago and successfully solved Dizzy 1 and Dizzy 2, today I want to have a look at Dizzy 3, "Fantasy World Dizzy".

The game itself was already released by Codemasters in 1989 and was written by the Oliver Twins; behind this name the two British brothers Philip and Andrew Oliver are hiding. Neil Adamson contributed the excellent graphics.

Personally, I really like games of this kind, as they combine skill with puzzling, and when they are as graphically appealing as the Dizzy games, you really can't complain anymore. But let's continue with the text. The game itself is quite challenging, because with the available lives and the available energy one has to act with caution with the quite respectable number of enemies. But with a little (much!) practice, you'll get along in the end and that gives you the reward - you have some demands on yourself, don't you? But maybe you'd like to go on a "sightseeing tour" in the beginning, get to know the "environment" a little bit without having to pay too much attention to the resources? Well, there are several tips and cheats in circulation, of which I would like to list the most known and most familiar ones below (without guarantee for their functionality and completeness):

Multiface Poke 63001,0	infinite life
Multiface Poke 42481,x	(x=number of lives; 0 - 255)
Poke 45003,24	Immune to flames
Poke 47094,24	Immune to rats
Poke 45911,201	Immune against dragon fire
Poke 45377,24	Immune to rhino
Poke 46040,201	Immune against alligator
Poke 47259,201	Immune to arrowheads

So much for the list of items. I hope I haven't forgotten anything.

If you want, you can now go on your way to solve the game. As you can see, some coins are openly visible again, while others are hidden behind other items as always. That makes the game very attractive, of course, because it requires some searching. But more about that below. Of course there is no patent solution in this game, because you can do many things in any order, while you have to do other things chronologically to get ahead. But this is already known from other games of this genre. Below i propose a possible solution. It's up to you how you tackle the game.

So we start (just do it my way) ...

At the beginning we are in an underground dungeon and both exits seem to be blocked. On the far right there is a troll, who is not very frienly towards us, as every time we get too close he gives us a kick. As we see, we have an apple with us and we try to bribe the guy with it. So we walk over to him carefully and offer him the apple. He thanks us very much, but he still won't let us pass. But for that he has a good tip in store, because he tells us that we can put out the fire with the water. So we go to the table and take the jug with the water and the old bread. We go to the left (watch out for the flames - keep the correct distance as always pixel-exactly) - whoever gets too close will quickly lose one of the three lives - and extinguish the fire. Now the way is free and we go further to the left where we see a heavy stone at the bank of a watercourse. We take it with us and then we go up to the right towards the exit. In the next screen we meet a patrolling rat, we throw the old bread to it and wait until it has left with it. Now we can get out of the building and enter the entrance hall. There is a big staircase. From here we turn left and put down the stone before the barrier. Then we go back into the hall and take the stairs up to under the picture. On the left and on the right there is a path with railings which we want to explore now. First we take the one on the right and jump up from the second upper step. This way we are pretty sure not to come into contact with the flames, because they mean acute danger. We take all the coins with us and now turn to the left path. Further left we come to a lever we use. Unfortunately it breaks off, but the lever has already done its duty. As we can see, the barrier below us is now passable. But at the moment we don't care about that yet, as we have to go further up. If we jump from the switch to the upper right and continue to the right here, we come to a room with a big table behind where another well-known representative of the Yolkfolk is sitting. We talk to him and after a long conversation he gives us a rope. We take this with us, as well as the coin on the ledge. Now we jump onto the table and from its extreme left edge to the top left. If the timing is right, we land on a small ledge under a torch. From here we continue to the top right and at the end of the path back to the top right. We are now in the stairwell and can make out a coin. But we leave it where it is for the moment and walk very carefully down the lower path to the right. When the picture changes we have to stop immediately, otherwise we will fall into a gorge with spearheads that will cost us a life. So we stalk very carefully and then with a courageous jump to the right and further up. Now we can pick up the key. Now back again very carefully, about only one step to the left and again take the jump.

Whew. Since we already have two items with us and we can't carry anymore at the moment, we return to the entrance hall on the familiar path. From here we turn right and come to the moat, there an alligator romps. It's good that we have the rope with us. If we pay close attention, we see that the alligator always opens its mouth three times in a row and then takes a short break. That's our chance. We'll stand on the bank and wait for the gator to catch us twice. When he opens his mouth for the third time we jump off and with the right timing we land on his snout, just at the moment when he makes the short break; hopefully, because otherwise another life is gone. Now we tie up his mouth with the rope and jump further to the right to the shore. There we lay down the first key and grab the stone lying there. Now we jump back again and use this stone to make our way up to the stairs. There we collect the coin and walk further up to the attic, where we find a fresh bone with meat. We pick it up and walk down to the entrance hall. Now turn left and carefully pass the barrier. We leave the stone here for the moment, it will be used immediately. Cross the walkway and turn left to get to a new screen with a rhino. We jump down from the rock and land right in front of the rhino. Here we put down the stone we brought with us and immediately jump back up again, because the rhino stomps us mercilessly if we take too long. Now back to the barrier and get the stone. Return to the rhino and run under the overhang on the right. There is another stone and

we exchange it for the bone. Then jump back out and up again. Immediately afterwards the rhino runs under the ledge and gets the bone. As we learn, it is now busy and no longer a danger to us. We go further left and come to the guardhouse. There is a bird circling in the sky that we should watch closely. As long as it is directly near or above a cloud, it cannot see us and we can safely pass below. Otherwise it will pounce on us and rob us of a life. But now there is a little trick in the matter. If it should happen to us that the bird jumps on us, we can send it back to the sky by pressing the ENTER key immediately before it reaches us and immediately pressing ENTER again. Unfortunately, the timing here is very difficult if not impossible. So if you prefer not to take any risks, you should be careful. In the next screen we are standing at a destroyed bridge, and in the middle a small platform is floating. We throw the two stones we brought with us into the water so that the water level rises. Now back to the rhino and get the stone that was deposited there earlier and throw it into the water as well, and now the platform is at an accessible height and we are able to cross the water. On the other bank there is another key we take with us. We come to the warehouse and see a green and purple box there. With the right jump angle we manage to jump between them and we reach the ground. From here further down we come to a hidden screen where a coin can be found. Then we have to find our way back up and with a little effort we will reach the surface again. In the warehouse we now try to jump onto the roof on the upper right. The best way to do so is to jump onto the first crate from the right and then go to the very left end. From here we should be able to reach the roof unhindered. Now of course we have to know how to continue. We jump off to the left and land on a cloud above the roof, where a coin can also be found. We leave the cloud to the left and arrive at the Docks & Pier. There is also a coin to be seen and we try to take it with us. To do so we jump onto the left crate, not the one on the dock(!), and stand as far left as possible. If we jump to the right from here, we would have to fall through exactly between the crates to get to the coin. From here we can jump out again to the left, and afterwards we march to the left.

Heads up! Behind the crate on the jetty is a broken plank through which we fall into the water! From here we can get to the end of the jetty. There we meet again a relative whom we address. After a long back and forth we get a container with Sleeping Potion. It's taken away immediately and now we turn right again to get to the screen with the alligator. There we have deposited a key earlier. But for now it stays where it is. Carefully we leave the picture to the right and come to a screen with a dragon wagging its head. Sometimes it emits fire, but if we stand very close to the tree, nothing can happen to us. If we watch closer, the dragon sometimes takes a break and wiggles its head. This is the moment when we come into action! We walk about half way to the dragon and put down the Sleeping Potion. That puts him to sleep. We return to the previous screen and get the key, so that we now have two of them. When the dragon has laid his head on the ground, we can pass him unharmed and get to a well. There is a backpack lying there, which we pick up. Now we are able to carry up to four objects at the same time. All coins, hidden or not, are taken along of course - you have to search a bit. We continue along the tree paths until we find another key on the right. But while we are in the area, we climb up to the top of the volcano, because there is also a coin there. Now we return to the hut with the lift control and watch where our three keys we brought with us fit into. Thereby we have to pay attention not to make any careless jumps or even to get to the lift rope, because this is absolutely deadly. Now that we have successfully used all three keys and activated three of the four lifts, it is time to turn right to the little cow. We are not interested in the pile of manure next to it at the moment. We take the cow with us and go up to the tree house town. Here you can find several coins. Since we don't have anything with us except the cow, we take the door knocker on the right at

a hut and go upstairs, where another old friend with a walking stick is waiting for us. We chat him up and finally get a crowbar which we take with us. Further to the left there is another axe which we take, too. Then down again; dont forget about the coin on the far left and on the cloud, then we reach the well and break the cover with the crowbar. Before that we quickly put down the door knocker. We fell into the well shaft and finally get into a somewhat twisted world in which some things are upside down.

We turn right and enter an old church. There we need exact timing and careful moving, because sometimes the climbing is only possible with pixel accuracy. From there we take another coin and the fourth key with us. Then return to the well and jump over the shaft to the left. We come to another screen where you can also get a coin. If we just wait here long enough or walking around, we see a well known companion. It's the storekeeper, whom we already know from "Treasure Island Dizzy". Normally you can do quite good business with this guy and so we try it here. We give him the cow we brought along and after some negotiations we get a green bean from him. We take it with us and go back to the well shaft. We jump into it and after a short time we land at the surface again. With the bean we walk to the manure heap and plant it. We learn that it is not able to grow. That doesn't bother us at the moment and we return to the lift control hut with the last key. Quickly we switch on the last lift and return to the well. There we pick up the door knocker and return to the lock. In the stairwell there is a locked door on the left and now we can open it. In the room behind it is an empty bucket that we take with us. Then again to the foot of the volcano where there is a small pond. There we fill the bucket with volcanic water and water the bean at the manure heap. Immediately it grows bigger and grows into the sky. Now it's time to go up there and over some clouds we reach the cloud castle of the evil wizard Zaks with skillful jumps to the far right. But watch out for unpassable places!

There at the entrance is a dragon egg, which we take and back with it to earth. If you know the right places, you can jump from the clouds very easily. Our egg will not be damaged. With egg and pickaxe we go into the lift control house and wait until the lift has gone up. Now we can go down through the hatch in the floor. There we see a dragon guarding its nest. With the lift on the left we go down and hope that the dragon is not spitting fire at us. If we are lucky we can put the egg back into the nest and the dragon is happy. As soon as he has lowered his head, we can pass him and take not only the coins but also the old thick blanket with us. Before that we have of course cleared the way with the pickaxe and removed the stones. Now we try to walk out of the picture on the lower right and meet the troll from the start screen again. This has the advantage that a coin is now visible in the start screen. But more about that later. With our blanket we now go back up to the Cloud Castle and with its help we can overcome the dangerous spearheads. Now it's very important to collect the coin first, because when we've lowered Daisy with the lift we won't be able to get to the coin anymore. So please be careful and proceed according to plan! After we have freed Daisy, she returns to the tree house town and wants to buy a tree house there. For this we now need the 30 coins. If we have collected everything so far, we should already have 29 of them. Now we go back to the starting screen and pick up the coin number 30. Then for the last time to the tree house town and join Daisy - Fantasy World Dizzy is solved!

So that's it. Quite complicated and partly quite sneaky, especially the coins, which you can't see at first. But a bit of tossing and turning is part of the business.

Therefore here is a quick overview of the locations of all thirty coins:

Seven coins are in the castle

1. at the portcullis
2. entrance hall on the top right behind the second railing

3. in the east wing
4. in the west wing
5. on the mantelpiece above Denzil's head
6. staircase
7. in the start screen - after the troll was in the abandoned mine (see above)

Four in the east

1. at the guard house
2. between two crates at the docks & piers
3. on the cloud above the Warehouse
4. in the Amazing Illusion under the green and purple box

Nine in the tree house town

1. right of the bottomless well behind foliage
2. for the railing in the Lift Control
3. at the base of the tree houses
4. at the right window of Daisy's house
5. behind the railing at Denzil
6. under the assembly hall
7. at the very end of a footbridge left on the Cloud
8. in front of Daisy's parents' house
9. behind the railing by the bottomless well

Eight in the West

1. on a cloud in the complex cloud route
2. on a cloud at the top of the volcano
3. on another cloud in the Horrbile Clouds
4. at the top of the active volcano
5. behind foliage by the big oaks
6. in the abandoned mine
7. in the dragon's lair
8. under the table in Daisy's prison

Two in the Opposite World

1. in the church
2. in the market place

I think I've earned a break for now. Now it's your turn. I hope I didn't forget anything and transferred all my notes correctly. So much for today.

So long...

SPECTRUMANIA 2020

BY NORBERT OPITZ

Hello everybody !

I would like to invite you to the 22nd Spectrumania in Wittenberg.

The Spectrumania 2020 will take place from Saturday, Sept 5th to Sept 6th, in D-Wittenberg.

The venue is again the Volkshochschule in Wittenberg, Falkstraße 83 / corner of Zimmermannstraße. The opening hours are Saturday, 08.30 to 19.00 and Sunday, 9.00 to 16.00. We get two adjacent rooms for use. Tables and chairs will be provided by the VHS. You will need to bring a large number of Sinclair and other 8-bit computers, extension cables, power distribution strips and a lot of desire for shared computers.

If someone would like to give an interesting lecture (about 15 min), that is welcome. It should only be said beforehand, if several people want to do so, for coordination.

For the physical well-being I will prepare a cold buffet with sandwiches, coffee and drinks.

On Saturday from 19.00 o'clock a barbecue dinner in the »Alabama« with following cosy get-together is booked.

You can register for participation in the Spetrumania and for the overnight reservation at the Terminplaner4.dfn.de,

https://terminplaner4.dfn.de/s65tKx5UzwrO5ZEn .

The registration, especially for overnight reservations, should be made by about July.

After clicking on the link, the appointment planner will open. Scroll down until you are ready to vote for the poll. Click on "Your Name" and enter your name, click on the green check marks in the desired columns and finally click on the green "Save" field on the far right. If you want to correct your name, click on the pencil symbol next to the line with your name.

I moved to another apartment in September 2018. You have to pick up the room key for the overnight stay in Alabama. You have to ring the doorbell several times. I have to come down, because there is no door opener but an intercom system.

The new address is:

Norbert Opitz, Marketplace 4, OT Pratau,
06888 Lutherstadt Wittenberg
Phone: 03491 - 5052169,
Cell phone: 0175 - 7556945
(only during the Spectrumania)

Registration either directly via the link here in the magazine or via forum.tlienhard.com.

https://forum.tlienhard.com/phpBB3/viewtopic.php?f=6&t=3204

Bye, Norbert

Addendum:

The Spectrumania in Wittenberg is not currently canceled.Whether the Spectrumania will take place depends on the decisions of the German government and the government of Saxony-Anhalt.

Whether the meeting will take place or not can be found out in the Spectrum for um *forum.tlienhard.com*.

SOFTWARE 2017 / 2018

BY THOMAS EBERLE

After the giant leap we made in the last issue, virtually flying over the entire demoscene in 2017, I want to devote myself back to games in this issue. These games have been released much more often than demos, that wasn't always the case. In general I think there were never as many games as these days. Here in this issue I will only present those that caught my attention. On average about 10 games are released per month + many that I just don't know. Even in the best Spectrum times of 1986 there were not more, although there were of course many that were never released. Nevertheless, we have a lot to do, let's get on with it.

We will start around October 2017.

Crazy Kong City - Episode 2:
Saving Kong (Gabriele Amore)

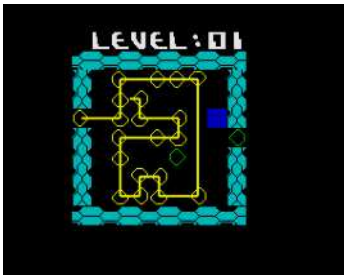
The blonde angel who was saved by Mario realises that she actually fell in love with the giant ape, and she wants to bolt with him. Unfortunately, the evil soldiers won't let her...

For whatever reason, Kong likes to climb skyscrapers. Airplanes want to prevent this and push him down again. This is where the player enters the scene. Using a crosshair the disturbing planes have to be shot down so Kong can climb in peace. If you notice that you can't manage all of them, a "Smart Bomb", i.e. a bomb that destroys all planes on the screen, helps. Of course, ammunition is limited.

First of all: What bothered me the most were the missing instructions. Even if the principle is easy to understand, you have to discover the little crosshairs first to see what you have to do. The game idea is a bit similar to the well-known "Action Force II", in my opinion one of the best Spectrum games, but the implementation is entirely different. Kong is only on a relatively small screen, but on that screen a lot is going on. The sprite collision detection is very precise and so the planes can be shot down very well, but some of them are really small, the whole thing should have been a bit bigger. The crosshairs have a certain inertia, so it is difficult to intercept the planes from the left and right. The smart bomb does help a lot, but overall I find the level of difficulty really high and a bit frustrating. In addition, boredom unfortunately is coming up quickly. The idea in general is very good, the implementation could have been better. But for a short time it is fun. You should definitely have a look at it.

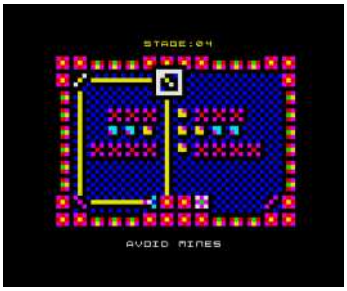
Beams of Light (Shiny)

An earlier Spectrum chart buster was Deflektor, and Beams of Light is very similar to this title. You have to reflect a light (laser) beam in a way so that all fields are illuminated by it. Very tricky, I admit that I didn't spend much time on it, but it was enough to test it. The game system is clear, the



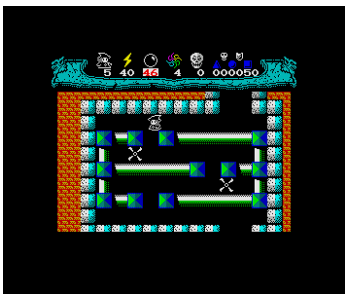
graphics are simple but sufficient. Short AY-sound is entertaining us. Of course, the whole thing could have been made more elaborate, especially the graphics. But the game principle remains the same, an entertaining, tricky game that somehow already existed.

Twinlight (Denis Grachev, Retrosouls)



Again it is about a laser beam that wants to be directed. But the game principle has been extended here. There is no time limit, but there are different tasks, e.g. destroying some obstacles or dodging mines. The mirrors can be moved and turned. Since there are few limits here, the motivation factor is very high. But, of course, it gets more and more tricky. The game is implemented in multicolour, which of course looks very colourful. But I would have refrained from that in this game and rather have chosen finer and less colorful graphics. After all, it's something special because of that. The AY music is entertaining and doesn't distract. Absolutely play it, but maybe you won't get away from it that fast.

Sophia (Alessandro Grusso)



Again Alessandro offers us a a game following a good old principle, but with some extras. In this maze game, the little witch has to find some items. The enemies that prevent her from doing so are of different nature and can only be defeated with the appropriate magic. To do so, you switch between dark and light magic. Each defeated enemy gives a Mantra point, which you can exchange for magic shots or other items in a small shop. So every shot hurts twice. The game is equipped with the usual obstacles, which have well been known since Sabre Wulf, but it's still fun. The graphics are very good, the heroine moves smoothly across the screen. The AY sound entertains without being annoying. Apart from the little trick with the magic, the game offers little new. But he who likes this kind of games should have a look at it. As a small bonus: Both the game instructions and the texts in the game itself are also available in German... but also in English, Portuguese, Spanish, Italian, Russian and Swedish. So the community should be well provided for, at least in terms of language.

Egghead 6: Egghead goes to town (Jonathan Cauldwell)

By now, the last of my readers should be aware that I'm not a particular fan of platform games - they all turn out to be very similar - I can't help but report about the master of this genre: Jonathan Cauldwell. The Egghead games have been around almost as long as the Spectrum and these also formed the foundation for the Arcade Games Designer, that in turn is responsible for the abundance of games of this genre in recent years. So, for the anniversary of Egghead, Jonathan himself set out again to develop a game. I almost feel like going back to 35 years ago, because in many ways this game resembles the well known Jet Set Willy and a lot has really not changed. Technically, the game is flawless, the movements are soft, the sprite query is accurate. The graphics are a slight improvement over that of the early 80s and small AY melodies are played when you enter a room or collect an item. But all this doesn't hide the fact that it's still a pretty simple game. You jump from platform to platform, jump over enemies and obstacles, collect items... that's it. I played it like crazy too, but that was many years ago. On the

Spectrum, time actually went on, but still, we're a retro community and this game definitely reminds you of the old days... and that's what it's supposed to do.

Vade Retro 2 (J.B.G.V.)

Already in 2012, Vade Retro inspired me. The story: A footballer has been kidnapped straight off the field (strangely enough he looks like a football manager) into a strange world. Now, five years later a scientist travels through space and time and coincidentally meets the guy. In the process, the their space/time ships are damaged and somehow they have to get away from this place again. Technically, the whole thing is an almost usual maze game with very, very small sprites. The unusual thing is the complexity. Just like in the first part one seems to visit an almost infinite universe with a vast amount of rooms and puzzles. One is surprised again and again, what the game has to offer, including a ride with a capsule on a rail. A special feature of this second part is that you alternately play both protagonists, again and again with key 2 thus switch back and forth. Graphics are nice overall, but a bit on the simple side. Except for a few effects, sound is completely absent. But the game is cleanly programmed and what was saved in graphics was used in memory for the abundance of rooms and puzzles. Thus this maze game is still fun.

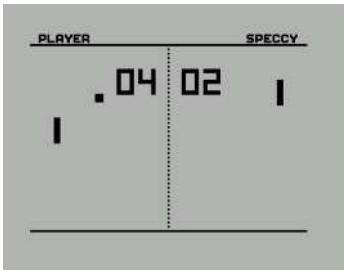
Xelda - Quest for the golden Apple (Andrew Dansby)

Another maze game, which probably not by chance reminds a little bit of Zelda. Armed with a sword, you set out to find an apple. There are all kinds of objects to find and puzzles to solve. Technically, the whole thing is well solved and both the level of difficulty and the level design are well coordinated and not boring. What's disturbing is the incredibly bad music. (indeed AY, but the programmer has probably never heard of modern trackers...) and the very simple graphics. Of course it's a mammoth project with many screens and they probably had to save memory, but you can see from other examples that it works better. Take the criticism as an incentive and just make it better and maybe a bit more innovative...

Cansinopac (Alboran70)

If you're gonna go retro, go for the real thing. This game combines elements of Jet-Pac, Cookie and probably some more classics. The task is to complete some pictures with paint cans you collect. You will be stopped by a white sheet of paper (??) and splashes of paint that want to destroy the artwork. The pictures show famous Spectrum heroes when completed. The whole thing was accompanied by a competition, who will finish the game first. The contest is over now, of course. The game is quite funny at first, but the fun soon fades away. The animation is jerky, the colour clash doesn't prevent the game from starting and the sound effects are very annoying. The idea, however, is really not bad.

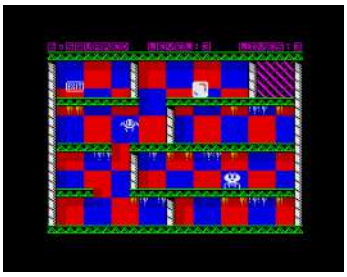
Speccy Pong (Julián Urbano Muñoz)



If there is not much left to say about a game, then it is Pong. Everyone knows the clunky clubs and the square ball that is played back and forth. So I'll confine myself to the essentials. The graphics are deliberately kept rough, the sound is limited to the sound of the ball but appropriate and the fun of playing... incredibly high. The clubs

move exactly and without jerking, the collision detection works exactly, even if you sometimes disagree. You can play alone against the computer or in pairs. The colours can be adjusted, but black and white is just classic. There's nothing more to say, get the classic.

Bsquared (Paul Jenkinson)

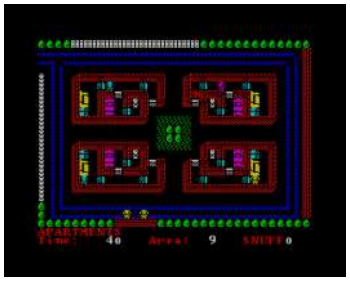


Once again Paul brings us a new game besides YouTube channel and magazine. Right at the beginning the groovy AY-sound is noticeable, which accompanies us throughout the whole game, but doesn't annoy at all. As a small cube, you have to pass some obstacles. For this, exact timing is necessary, the cube can only bounce left and right and strangely enough also upwards, but not downwards. Often you have to calculate your path exactly in advance to avoid an opponent at exactly the right moment. These move, fortunately, always in the same patterns hrough some levels and must not be touched. A bit annoying here: Some things you have to try, like the speed of the treadmill in a higher level. Of course you lose a life while trying out and so it's almost impossible to play through the game in one go. But unfortunately there are no level codes, if you have used up your four lives, you have to start again from the very beginning. That is a little frustrating. Otherwise, the game is well done, graphically not very elaborate, but respectable and as said with good sound. No colour clash, with exact collision detection and soft animation, technically perfect.

Mag the magician (Radastan)

A sorcerer's apprentice has lost his spell book. Now he must find the five pages again. Finally, we have here again a maze game, really not very original. Sometimes we encounter locked doors and need keys, mostly it's just about dodging enemies in the form of knights or orcs or whatever. The level of difficulty is pleasantly feasible, the graphics really made very nice. No sound was supplied, there are only step noises. It's certainly a well done one and not worse than the thousands of others of the same game principle that exist. For me it was just boring.

Snuffo (Fadge Games)



Let's forget the story and imagine that Snuffo is not a killer clown but a hero who collects all the children. But he can't let himself be caught by the bad, uh, dressed up cops. Basically the game is about getting to the game with cunning and guile. The opponents are following you quite cleverly and tricking them is not always easy. Sometimes you end up at a dead end. A little tip: look for the crowbar, then you'll be able to get into the houses better. The game has simple graphics and no sound, but it's still fun and if you told the story the way I did, it would be G-rated.

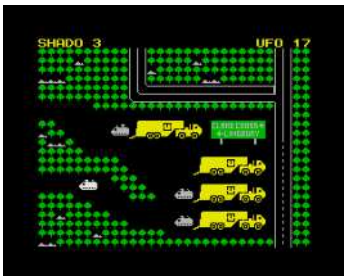
QBOX (Sergio Llata)

The name sounds more like a tricky puzzle game, but here skill is also required. You have to collect the flags in the correct sequence of numbers and reach the finish line at the end. Due to the chosen perspective the controls are already tricky, I can absolutely recommend the keyboard. You can't jump, only dodge. The right timing is important. If you touch an opponent, you only lose energy, but if you fall off the platform, you lose a life. The 3D graphics are quite respectable, but monochrome. Great sound underlines the whole thing in the 128k version. There's not much more to say, except: It was fun!

Boxes (Alexey Kashkarov)

What at first looks like a Sokoban clone is something completely different, but remains in the puzzle area. In this game, not single boxes are moved, but all boxes at once. Each change of direction does all boxes at once. You have to maneuver them out so that all four give a big square. For this you steer e.g. against a wall so that the others come closer, but a box cannot move away in this direction. The tasks are different and more and more difficult. The graphics are nicely done and sufficient. Sound in the game is none. Tricky game for long evenings.

Gerry Anderson's Ufo (Francesco Forte)



This game is rich in variety because it consists of several sequences. It is about stopping the aliens. In the end it is about points, if you lose a spaceship, the enemy gets a point, if you shoot an enemy ship, you get a point. The target is 50 points. At the beginning you have to intercept the invasion. You have three spaceships, most of mine were destroyed at launch. If the aliens have landed, you look for the UFOs with armoured vehicles. If you have found one, a fight takes place, which can't be influenced. Unfortunately, I have often lost here too. Afterwards the aliens retreat and you can chase after them again with a spaceship. Then the next round starts and they come back.

The idea itself is quite good. I find the conversion for the most part graphically not successful. Also the degree of difficulty is frustratingly high, the moon ships are already under continuous fire at the start, the sequence often takes only seconds. As I said, the graphics are very simple, the forest sequence a little better. There is no sound, only few explosion sounds. Here could have been more, but maybe there is going to be a successor.

Jilly's Farm Volume 1... SokoBAArn (Bob Smith)

No, no typo, this is actually about sheep. So, one sheep. Just like Sokoban, you have to push the crates into the target fields. Often it's about doing this in the right order so as not to obstruct your own path. Helpfully, there is a button to take a step back again. Very good idea. Graphically, I think it's the best Sokoban ever. The creature is well drawn, like the rest of the farm. The movements are of course not so soft, but the game is technically very good. There are some short sound effects, but no light music in the game. Who always liked to play Sokoban, will find a good sequel here.

Pink Pills: Manic Moritz and the meds (Sebastian Braunert)

Software from Germany rarely enough gets into the Spectrum memory. Reason enough to also present this second work by Sebastian Braunert here. Again it is about Moritz the dog. He probably swallowed too many of his colourful pills and finds himself in a world where it seems to be very difficult to collect all bones. In fact... very difficult. I've certainly spent most of the testing time on this game and didn't even get through the first level. But the motivation factor remained high. In the end you can't touch the enemies, otherwise your life is gone and the level starts all over again. With exactly timed jumps you collect the bones, but you also have to calculate where you will come up. The controls work exactly, just like the sprite collision detection. But there is more trouble, as you also have to fight against a time limit. As I said, I never got bo-

red and the new version of "Sweet Dreams" takes me back to the 80s. Unfortunately, we are also in the graphic area, there is still some potential. But the fun factor fits.
That's it with the software from the year 2017. When I started this series with the year 2014, I thought in 3-4 issues I will catch up to the current year. Now it's 2020 and I just finished 2017, so I'm still more than two years away from being up to date. I don't even describe every program I look at, but there are just too many.
In the next issue I'll start with 2018 and there are demos there again. But if a reader wants to support me, I will be happy to send software to him. It's just too much what comes up and in the end it wouldn't be bad if we could catch up a bit. Because I already know now, 2018 it's not less games and generally it will be more.
You can easily find all games on the internet. Some of them will surely appear again on Scene+ in your preferred disk format. If you want to send us a program yourself, you are welcome to do so, for this you get subscription points.
See you!

Thomas

MINI-RETRO GAME CONSOLES AGAINST BOREDOM
TWO NON-SPECTRUM GAME CONSOLES
BY JOACHIM GEUPEL

Who among our the readers still knows Mr. Pithney? Probably not many anymore, as he was the advertising icon of a German consumer goods and retail company headquartered in Hamburg, which became famous for their coffee trade. Meanwhile this company generates more than 80% of their profits in the non-food sector, which brings us to the subject.

This retail company had two retro game consoles on sale for Christmas 2019. One of the games connected to the video input of the television set, which is why it is also called a retro TV game console. The second one was a mini-console with a tiny TFT display, so it's called a pocket-sized retro mini-game console. Both consoles I present here.

First of all: both consoles are tiny. The mini TV console measures 69x22x46mm, the pocket console measures 90x50x20mm, (length, width and height).

As always, joy and sorrow are close together with such devices, but what both have in common is the undeniable retro feeling.

First the retro TV game console.

Retro TV game console

The retro TV game console is small and handy. Included with the package is a two meter AV cable with two RCA plugs at one end and a 2.5mm stereo plug at the other end. A comprehensive German-English user manual and three AAA batteries are also included. The operating instructions are great. Someone has really made an effort. Although the mini-console is self-explanatory, everything is explained in detail. I would have wished for one of these for my new Smartphone - honestly!

The console offers 200 games, whereby relatively many have the same game and operating principle.

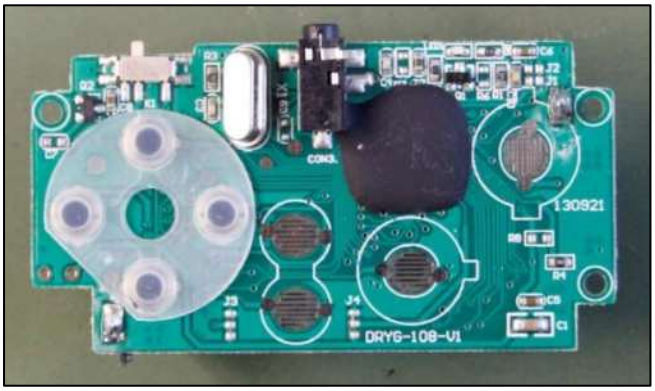
Start screen

Game Sky-Invader with jerk-free moving graphics

On the top side there is a joystick, two small buttons for start and reset and the obligatory buttons A and B. The backside is decorated with an on/off switch, the necessary AV socket and a 1mm hole, which I didn't understand, even though I took the console apart. Probably they had one left over from production and built it in...

Lower side with flash memory

Once the part is equipped with batteries - to insert the batteries you need a small screwdriver to open the battery compartment - and connected to the TV, you are ready to go. The console responds unspectacularly with the start screen. You select it by moving the joystick up or down or right and left. Up and down selects a single game, right and left shows a new page of the game list.



Upper side with quartz, connector and controller

The games are well made, the picture is sharp, even if the edges of the screen look a bit frayed. The retro sound is clear and conveys the typical game feeling of the 80s. There is no jerkyness of the images when playing games, everything runs smoothly.

There are also shadows, of course. What I noticed quite negatively is that the joystick assignment is not correct in every game. Actually one expects that when the stick is moved upwards, the reaction of the game character is also towards the top of the screen. Actually this is not always the case. Depending on that, the console has to be turned in the hand to get the right direction. In some games the reaction to keystrokes and joystick movements is somewhat delayed, which is detrimental to the gaming fun.

There is relatively little in the mini console. On the back of the board is an 8MB flash memory from Spansion, along with the spring contacts for the batteries. On the front, the large IC covered with black cement is striking. There is also a quartz, two transistors, a few resistors and capacitors as well as the on/off switch and the contacts for the keys. Hurrah for the modern technology that manages to accommodate everything, for which 30 years ago a large circuit board with many components was needed, in a flash memory and a highly integrated custom IC on a few square centimeters.

In summary, I can say that the retro TV game console is fun, with the limitation of the wrong reaction of the joystick and the delayed response of the controls. In my case, I just omit these games - there are plenty of others available that are more fun.

The retro mini-game console

This console is my personal favourite. It is small and handy, fits in your pocket and has its own screen with sound output.

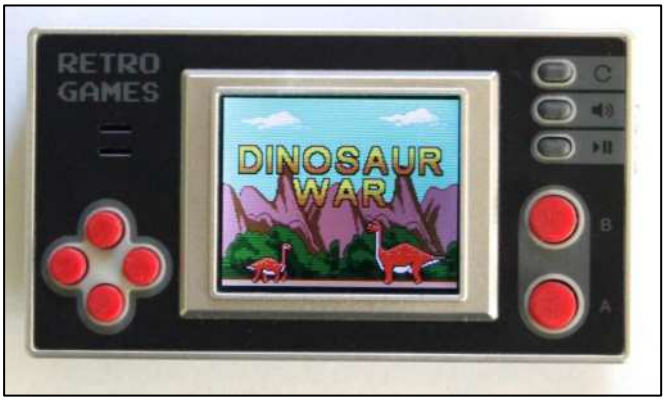
I have already bridged the waiting time at the doctor - before Corona and CoVid-19.

The design is the same as in the early 80s, which supports the retro feeling. The console provides 150 games, but some of them are very similar. Sometimes only the game sprites are changed.

The necessary batteries are included in the scope of delivery again, so that the gaming fun can begin after inserting them. The screen is 1.8 inches in size, thus quite small. Nevertheless it is easy to read, but sometimes you have to look closely to recognize something. The games offer most of what Nintendo and co. have already offered, but much smaller and less elegant.

The controls are similar to the retro TV console. But instead of the joystick, there are four cross-shaped buttons on the left of the display, which are used for controlling. To the right of the display there are more buttons: two large ones marked A and B, above them three small ones for reset, volume and start and pause. The keys are easy to use and offer precise control, even if they are a bit small.

After switching on, the console reports back with the words RETRO GAMES and the selection of the first five games. The first thing that caught my eye was the annoying music that can be heard from the piezo loudspeaker. So the function of the volume button was immediately welcomed. Just as with the mini TV console, the games can be selected with the four buttons on the left. The large buttons on the right are assigned depending on the game: Fire, accelerate, jump, etc. The function is well known. The display is technically sharp, the screen is pleasantly bright.



Dinosaur War - Prevent the little one from being kidnapped!

Since there are 150 games to choose from, I will spare myself the description of the games. There are shoot-them-up games, logic games, skill games, games that require a fast reaction time and learning games available, also a farting panda. I prefer the logic games myself, because they keep me busy the longest and most entertaining.

I refrained from disassembling the console. All in all it should be similar to the TV console. The disassembly is tricky in the given case, to place the TFT display exactly again has already proven to be difficult or impossible with other devices.

With 12.99 € for the retro TV game console and 14.99 € for the retro mini game console the consoles are not too expensive. You will have your gaming fun with them, which won't get boring even after a long time and which will give you a certain nostalgic feeling. However, they have disappeared from Tchibo's product range since Christmas 2019 - so it is now clear who the German consumer goods and retail company with headquarters in Hamburg is.

Incidentally, the two consoles can also be found on Ebay and various other retailers on the Internet in different versions. So no one has to wait for a new offer from the said dealer. (jg)

THE STRANGE EXPERIMENTS OF PROFESSOR ST. CLAIRE

PROFESSOR DR. DR. ST. CLAIRE AND THE SPLITTING OF THE BIT

PART 2

BY JOACHIM GEUPEL

What happened so far:

Professor Dr. Dr. St. Claire loses his job at a near-elite university because he blew the entire research budget of 3.20 Euro. His factotum Henry S. Lowrenz accompanies him into exile.

In order not to die of boredom, the professor decides, after some consideration, to dare the impossible and to split the previously unsplittable: the bit. To do this, he must invent a spaceship to distil the bits from the shredded snippets of various computers in the vacuum of space. Once this has been achieved, he is forced to invent some more highly specific measuring instruments and tools. He also has to invent a time machine, which is his easiest exercise.

Finally the travel preparations are finished and the journey into the past can begin.

* * *

»Henry, did you bring enough to read?<< the professor asked thoughtfully as they entered the time machine.

Henry tapped his shoulder bag with one hand and replied:

»All right, Chief! I have taken one of the newest works of modern world literature.«

He opened his shoulder bag and pulled out *»Demmi's Diary«*.

»I've wanted to read that for a long time. It was nominated for the Nobel Prize in Literature.«

The professor looked at the book with the green cover with interest.

»When you get through, I'd like to read it too!«

»Yes, boss.«

Henry rummaged around in his shoulder bag and pulled out an undefined object that looked like an oversized cream-colored butter dish.

»Oh yeah, one more thing. I put a Commodore C64 in my bag - just in case. Who knows , it might come in handy.«

»There is no reason to doubt the genius of Sir Clive!« Professor St Claire looked down at Henry with disapproval.

»The ZX Spectrum will perform its services faithfully as always! Leave that thing here, please.«

»I will take it with me, otherwise i am not going with you, Professor.«

Henry's eyebrows furrowed, and he gave his boss an angry look.

»In the last few weeks I have managed and coordinated all the trucks that brought the liquid helium! I have prevented a squirrel from building its nest in your beard. Not to mention the cobwebs I kept removing from you while you were sitting there.«

Excited, he raised his index finger under the professor's nose.

»I have earned this!! Yes!« It should be noted here that Henry S. Lowrenz was the only person on earth who was able and willing to end a sentence with two exclamation points.

The professor's gaze became gentle, he was basically a very gentle person.

»Ok! Squirrel, you said?!«

»Yes!«

»Ok, take this thing with you! But you'll see, we won't need it!«

Which proved that even brilliant people like Prof. Dr. Dr. O. Je. St. Claire can be very wrong...

Together they entered the time machine, which bore the characteristic name ***»Sir Clive II«.*** Henry draped his shoulder bag with the C64, the datasette and the external power supply in the steel cabinet, which was firmly screwed to the bottom of the time machine, and locked the door carefully.

* * *

The professor reached for the lever of the energy supply and flipped it over. A heavy relay closed the circuit to the main generator, in which exactly 724 hamsters ran like mad in their wheels.
The lights came on. The screens showed:

»© **1982 Sinclair Research Ltd**«

Henry threw a glance across all seven screens. As far as he could see, all computers were running faultlessly.
»Henry! Load program!«
»Okay, chief!«
His fingers gently touched the rubber keyboard of the central ZX Spectrum 48, typing the command:

»**LOAD * "m";1; "Time Travel"**«

And concluded the order with

»**RUN**«

The Microdrive started and with a rubbing noise it pulled the tape of the endless cassette, the "Racing Shoelace", through.
Suddenly an angry growl sounded from the microdrive. Shortly afterwards the message appeared on the screen:

»**File not found**«

Henry rolled his eyes up. The supply of functioning microdrive cartridges was slowly running out. It was about time the professor finally decided to get some more secure storage media. The DivMMC Enjoy! would be a very good solution...
»Chief! The tape got stuck! «
»Then exchange it. Take the tape that's still in the recorder and load the program from there!"
»Okay, boss. «
Henry jumped up and plugged the grey plug of the transmission cable into the MIC socket on the ZX Spectrum. He pushed the other end into the cassette recorder's headphones output. He typed in:

»**LOAD "Time Travel"**«

and concluded the command with Enter.
The screen changed its border color, shortly afterwards red horizontal stripes appeared at the border. A howling sound could be heard, followed by a short chirp. The message appeared on the screen:

»**Program: Time Travel**«

Fast changing horizontal stripes adorned the edge of the screen. At the same time, a chirping sound came from the beeper. Suddenly:

"R Tape loading error"

»Chief! The tape recorder ate the tape!«
The professor looked up irritated. The Time travel seemed to have failed right at the start. Henry fumbled the tape out of the cassette recorder and carefully released the tape from the pressure roller, while the professor stood up and took a second cassette recorder from the shelf and connected it to the Spectrum 48.
»Chief! I need a pencil.«
Wordlessly, the professor reached into his breast pocket, pulled out his fake permanent pencil and handed it to Henry. He pushed the pencil into the cartridge and carefully wound the tape back onto one of the reels. Then he put the cassette into the second recorder, entered the LOAD command and started the tape again. This time everything went smoothly. After some minutes the message appeared on the screen:

»**0 OK, 0:1**«

The journey into the past could begin.

* * *

Log of the time travel into the past.
Purpose: splitting the bit:
Record Prof. Dr. Dr. O. Je. St. Claire
Splitting the bit - day 57:
We are on our way back in time. Everything is going well. The 724 hamsters that supply the CO2-neutral energy are working with maximum efficiency. The hamster-driven generator runs at 100 percent power.
Right at the beginning of the journey we were overtaken by a DeLorien(*1), which raced past us like a deranged person. In it sat a teenager who was wearing some kind of sailor's jacket. He obviously did not notice us.
Taking into account the dangerous nature of the project, I have decided to travel as far back in time as possible without endangering our return. The range is directly dependent on the food supply of the hamsters.
From this it has been established that the current

maximum range is relatively precisely 66 million years. Or should i say "far in time?". This kind of journey requires a whole new kind of terminology.
We have passed the Stone Age. We are in the Pleistocene(*2), 600 000 years in the past. Our travel speed is still increasing.
All ZX Spectrum are working without problems. On the main control computer, the years are counted down from the present. The main computer is currently showing

- 6,400,000 years a.t.P. (*3)

We just passed the Pleistocene.

* * *

Record Henry S. Lowrenz
Splitting the bit - day 57:

Man-o-man! I wouldn't have thought that everything goes so smoothly. The hamsters have to be fed all the time, but it doesn't matter. The critters produce a lot of manure, which of course has to be disposed of. The professor has provided an opening in the time machine for this. All the dirt goes in there and then disappears forever.
Looking into the opening is strange. It's seething inside and you have the impression that you are constantly being called. I asked the professor what it was. He said it was the spirit of the age.
All the ZX Spectrums are running smoothly.

Record Prof Dr Dr O'Je. St Claire
Splitting the bit - day 58:

Slowly we approach the time-point in the past. We have crossed the whole Quaternary(*4) most of the Tertiary(*5) and are approaching the chalk-paleogene boundary(*6). I have initiated the braking process. It still takes a few minutes and we are there.
The displays of the central control and time travel calculator now show

- 66,040 million a.t.P.

We're here!
The hamsters deserve a rest!

Recording Henry S. Lowrenz
Splitting the bit - day 58:

Wow! More than 66 million years in just one day! The professor's machine is great! And the control spectrum worked great! Sir Clive, this thing is ingenious.
We've arrived at the part of Europe that will later become England - at least that's what the Professor said. I shall now screw the wings on the outside. Then we'll find a place where we can work undisturbed. I have something in mind.

Recording Henry S. Lowrenz
Splitting the bit - day 61:

We are on our way to the future American coast. The "Sir Clive II" is not exactly aerodynamically built. Therefore our maximum flying speed is only about 250 km/h. But this is enough to reach the coast within four days. The Prof and I have taken turns at the wheel. But there was not much to do. The ZX Spectrum was switched on as an autopilot and controlled the flying time-travel device.
We've been on the road for just over three days. We've just flown over a small island that seems well-suited for the experiment. It is a small rock island. No larger plants, no animals, just some moss.
The beach is suitable as a landing strip. I'm going to touch down.

Recording Prof. Dr. Dr. O. Je. St. Claire
Splitting the bit - day 62:

Henry landed us safely. We have set up our accommodation and the laboratory.
Tomorrow the experiment can begin.
In the lab there is a ZX Spectrum, which should record the experiment. The second ZX Spectrum, which controls the experiment, is also installed. Both computers have been tested and are working perfectly. The problem with the Microdrive not working has also been solved. A beetle has gotten lost inside it and has blocked the drive roller.
Tomorrow the experiment will start! It's finally starting!

* * *

Recording Prof. Dr. Dr. O. Je. St. Claire
Splitting the bit - day 63:

Phase 1: Control

Visual control and data transmission!
Transmission from laboratory to Sir Clive II has

been tested and is complete. All recording spectrum, the **recZXSpe48's**, are running and recording.

Phase 2: Insert bit!

The bit is clamped in the special vice. The impact drill is equipped with the **PEEK** bit and attached to the Mobile active multifunction gripper, i.e. to the robot arm!

Phase 3: Approaching the bit!

The mobile forward motion module, the model car, slowly moves forward, the contact of the **PEEK** bit with the bit is imminent.

Phase 4: Contact!

The **PEEK** bit is in contact with the bit. The bit seems to deform. It is changing its colour from a silvery shine to a reddish gold tone.

Note:

...an asteroid(*7) just blasted past Earth. It has touched the upper atmosphere and has disappeared again.

Phase 5: Fission!

The **POKE** meter is failing. The released energy of the bit is now already 100k**RND**, still rising.

A glow forms around the bit! It shows first cracks.

There!

Now!

(... the rest is silence ... or not!?)

Recording Prof. Dr. Dr. O. Je. St. Claire

Splitting the bit - Day 63, part 2:

Henry saved us!

At the moment the bit was split, he hit the NMI!

The NMI should have thrown us 100,000 years back into the future. But we are still falling towards the future!

The POKE meter's scale has been blasted. It ended at 6*106 k**RND**. The bit exploded with an energy of 10.196 megatons of TNT explosive power, including all other bits in the reaction! The total explosive force was about 2.6 gigatons TNT. This is approximately 200 million times that of the Hiroshima atomic bomb! The remaining crater should have a diameter of about 180 km and be 10 km deep.

The *Control Spectrum* could not cope with this gigantic energy - even if only just. It is burned out, so we are falling almost rudderless. Henry jumped in as interim ZX Spectrum!

He protested!

But somebody has to drive the **»Sir Clive II«.**

The other six *ZX Spectrums* are functioning correctly without a central computer. However, none of the six remaining *ZX Spectrums* can replace the central one. They are busy with other important tasks. One keeps the fridge at a constant 6° Celsius and the second ensures that the temperature in the hot tub doesn't drop below 32° Celsius. On the third one **Magic Miner** is currently running, which at NO case may be interrupted! The fourth controls the many colourful lights on the control panel, the fifth *ZX Spectrum* has been running **Jet Set Willy** for seven weeks, and the sixth paints colourful lines on the screen. These are all activities that determine the fate of the expedition. So all of them indispensable!

Recording Henry S. Lowrenz

Splitting the bit - day 63:

The stupid professor tied me to the captains chair and stuck a microdrive cartridge in my ear, I am now supposed to steer the time machine back to the present as a replacement computer!

He's crazy.

I have managed to stabilize the time machine. We're no longer falling out of control. I'll try to land it.

Recording Henry S. Lowrenz

Splitting the bit - Day 63, part 2:

We have landed. Our distance to the present is still about 42 million years. Since all other computers are indispensable, I will have to suggest to the professor to use the C64, which is still in the closet. We will have to make sacrifices to return to the present.

Recording Henry S. Lowrenz

Splitting the bit - Day 63, part 3:

I did it. The professor just got a uncontrollable urge to scream, but now he lies in his contour chair and cries.

As a precaution I took the C64 out of the cabinet and connected it to the electronics. Of course the-

re are many incompatibilities. There is the danger that some bits get stuck again. But we have to take the risk.

Later on:

Okay. The Commodore C64 is running. It's pretty much at capacity. What the ZX Spectrum could calculate in idle running, the C64 has to work hard for that. The program is running. But the connection to the other computers could not be established. The systems are too different for that.

The professor has recovered in the meantime. He still caresses the dead ZX Spectrum and sometimes sobs up. ...but it's all right now. The professor, I mean.

Recording Prof. Dr. Dr. O. Je. St. Claire

Splitting the bit - day 64, part 1:

My heart still bleeds when I think of the dead ZX Spectrum. The C64 cannot really replace it.

It is all so sad!

But there is no other way.

We are going to launch!

* * *

The experiment had failed spectacularly. It could never be clarified what caused it. It is uncertain whether the errors were due to equipment failures or whether some environmental influences caused the experiment to fail. Perhaps it was also the case that it was against every law of nature to split a bit. No human being could find an answer to this. Even Sir Clive Sinclair, to whom the problem was presented sometime later, did not find a satisfactory explanation.

The journey of the "Sir Clive II" to the present day was spectacular.

The Commodore C64 was absolutely overwhelmed with the problem of controlling the time machine. The two daredevil scientists had a fulltime job preventing the C64 abandoning its tasks. But this was not always successful.

On the journey back to present, the time machine "Sir Clive II" entered real time 50 000 years before the present. It touched the surface where the USA is today, more precisely in Canyon Diabolo in Coconino Country. When it touched the surface, it left a crater 1200 meters in diameter with a depth of 180 meters.

The machine bounced off, disappeared again in the time stream and entered the earth's atmosphere again on 30 June 1908 in the Siberian governorate of Yeniseik, Krasnoyar region, near the river "Stony Tunguska", uprooting trees in a radius of 30 kilometres.

At the very end, shortly before the final arrival in the present, a short stopover had to be made at Rosswell in New Mexico on July 8, 1948.

Finally, the "Sir Clive II" arrived in the present after all. The energy supply had not failed at any time. The 724 hamster generator, which also works CO2-neutral (had i mentioned this already?) had proved itself running very well.

It should be noted that Professor Dr. Dr. O. Je. St. Claire has refrained from splitting the bit for the time being.

But you never know...

The two adventurers are doing well.

Professor Dr. Dr. O. Je. St. Claire has applied for a patent on his 724 hamster generator. The royalties are flowing.

(*1) *DeLorien:* Time machine of another brilliant scientist. Has the shape of a sports car.

(*2) *Pleistocene:* Period of the Earth's history. Beginning about 2.588 million years ago, end about 11700 years ago.

(*3) *a.t.P:* abbreviation for *»after the present«*. Serves to determine the current temporal location of the »Sir Clive II« in relation to the present.

(*4) *Quaternary:* The youngest period of the earth's history. From 2.588 million years ago until today.

(*5) *Tertiary:* A period of the Cenozoic. Beginning end of the Cretaceous period about 66 million years ago. Duration until the beginning of the Quaternary.

(*6) *Cretaceous-paleogene boundary*, also called *K-P boundary*. Transition between the Earth Medieval and the Earth New Age.

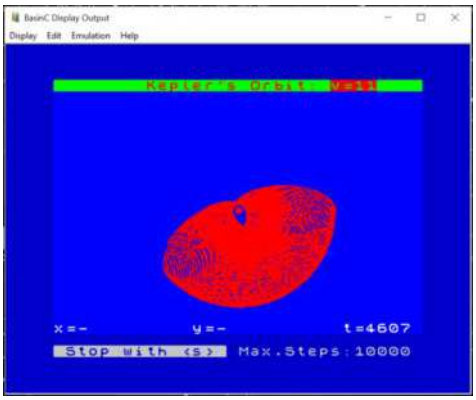
(*7) *15km diameter asteroid:* Allegedly responsible for the extinction of the dinosaurs. We now know what really happened.

All names given, which have a reference to persons, fictitious or living, and a use in already published data media, sound carriers or image recordings, as well as all program names used in the text, are the property of the respective editors, authors and/or programmers/software houses. (JG)

So, this was the first adventure of Professor Dr. Dr. St. Claire and his factotum Henry S. Lowrenz. The editors of the SUC session have more highly encrypted reports of the two. All ZX Spectrum present are working flat out to decipher them. The first suspicions about the content are already available. It seems that at some point the Professor may have saved the world. It also seems that he had an adventure with a certain cat.
So we can be excited for the sequel!

BASIC-GIMMICK 3

```
 10 REM ***********************
 20 REM *                     *
 30 REM *  'Keppler's Orbit'  *
 40 REM *    Original from    *
 50 REM *ZX SPECTRUM ASTRONOMY*
 60 REM * DISCOVER THE HEAVEN *
 65 REM *   ON YOUR COMPUTER  *
 70 REM *      edited by      *
 80 REM *   Joachim Geupel    *
 90 REM *   22 January 2019   *
100 REM *                     *
110 REM ***********************
120 REM
130 BORDER 1: PAPER 1: BRIGHT 1: INK 7:
    OVER 0: CLS
140 REM
150 PRINT AT 0,0; PAPER 4; INK 2;
    "(8 * space)Kepler's Orbit: (9 *
    space)"
160 INPUT "Speed (1 - 35) ";w
170 IF w<1 OR w>35 THEN BEEP .1,1:
    GO TO 160
180 LET u=0: LET f=0: LET h=1
190 PRINT AT 21,0;"Maximum number of
    steps?"
200 INPUT "Max. 100000: ";j
210 IF j>100000 OR j<1 THEN BEEP .1,1:
    GO TO 190
220 PRINT AT 21,0;"Overwrite drawn
    trace? (y/n)": PAUSE 0:
    IF INKEY$="y" THEN LET u=1: LET h=1
230 PRINT AT 20,0;"Fast and large steps
    {inv.1}<0>{inv.0},"
240 PRINT AT 21,0;"or slowly and
    fine-drawn? {inv.1}<1>{inv.0}"
250 PAUSE 0: IF INKEY$="1" THEN LET
    h=.2
260 PRINT AT 20,0;"(22 * Space)"
270 PRINT AT 21,0;"(22 * Space)"
280 PRINT #1;"{inv.1} Stop with <s>
    {inv.1} Max.Steps:";j
290 PRINT AT 0,24; PAPER 2; INK 4;
    "v=";w: FOR n=.5 TO 2 STEP .5:
    CIRCLE INK 2;128,85,n: NEXT n
300 LET t=0
310 LET g=1000000
320 LET x=g/1000: LET y=0
330 LET i=h/4: LET v=0
340 LET r=x: LET s=y
350 LET x=x+i*v: LET y=y+i*w
360 IF u=0 THEN OVER 1
370 GO SUB 530
380 LET x=r: LET y=s: LET o=h/2
390 LET v=v+o*b: LET w=w+o*c
400 GO SUB 570
410 REM --- Start Hauptschleife ---
420 LET t=t+h
430 OVER 0
440 PRINT AT 21,25;"t=";INT t
450 IF u=1 THEN OVER 1
460 LET x=x+h*v: LET y=y+h*w
470 GO SUB 530
480 LET v=v+h*b: LET w=w+h*c
490 GO SUB 570
500 IF INKEY$="s" OR t=j THEN GO TO 700:
    REM maximum steps
510 GO TO 420
520 STOP
530 LET e=x*x+y*y: LET d=SQR e
540 LET a=-g/e: LET b=a*x/d
550 LET c=a*y/d
560 RETURN
570 LET a=x/15+128: LET b=y/15+85
580 IF a>255 THEN LET a=255
590 IF a<0 THEN LET a=0
600 IF b>175 THEN LET b=175
610 IF b<0 THEN LET b=0
620 IF a=0 AND b=0 OR a=255 AND b=0 OR
    a=0 AND b=175 OR a=255 AND b=175
    THEN OVER 0: PRINT AT 21,0; PAPER 4;
    INK 2;" On the way to infinity ...":
    GO TO 700
630 IF a>=125 AND a<=131 AND b>=82 AND
    b<=88 THEN OVER 0: PRINT AT 21,0;
    PAPER 2; INK 4;"----------
    COLLISION! ----------": GO TO 700
640 PLOT INK 2;a,b
650 OVER 0
660 PRINT AT 21,3;" ;"(7*Space)";
    AT 21,15;" ;"(6*Space)"
670 PRINT AT 21,0;"x=";INT x;
    AT 21,12;"y=";INT y
680 IF u=1 THEN OVER 1
690 RETURN
700 REM
710 INPUT "": PRINT #0;"\{vi} Again?
    <y/n>\{vn}  Max.Steps: ";t: PAUSE 0
720 IF INKEY$="y" THEN RUN
730 OVER 0: PRINT AT 21,0; PAPER 4;
    INK 2;" ;"(14 * Space)Bye! ;
   "(14 * Space)"
```



RETRO LINKS

In order to fill the last page I reverted to the internet and searched for websites that deal with retrocomputing and offer information.listed here are in German, but there are also English language sites. The Spanish, Italian, Czech, Russian and Swahili sites I have excluded - well, I have not found any in Swahili.

The links are listed without detailed comments on my part - just make your own judgement. I can recommend the 8-bit wiki, the VzEkC site, the ABBUC site, and MSX.org.

More in the next issue!

Have fun browsing.

The ***Spectrum User Club*** („our“) site
http://www.speccy-scene.de/

The side of ***Joachim Geupel*** - well, mine...
only in german – sorry ☺
http://www.joggysite.de/HomeComputer/hc_index.html

The ***8bit Wiki***, a database for information on 8-bit computers. Extensive and very informative. Admin is Dieter Hucke.

http://www.8bit-wiki.de/home.html

The site of the association for the ***Preservation of classic computers***. A must for all those who deal with retro computing.

https://www.classic-computing.org/

Page of the ***Atari User Club***. The biggest computer club in the world. A great site!

http://www.abbuc.de/

The page for ***MSX computers***. A great site.

https://www.msx.org/

The site for ***Commodore***, but also for other computers

https://www.c64-wiki.de/wiki/Hauptseite

The ***Homecomputer-Museum*** - An incredible collection with truly everything! Including Z1-Z4 from Zuse.

https://www.homecomputermuseum.de/historie/homecomputer/

www.sintech-shop.co.uk www.sintech-shop.de

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